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Heritage Statement

Thunderer Jetty
Stolthaven Dagenham Ltd
Hindmans Road
Dagenham
RM9 6PU

On behalf of

Stolthaven Dagenham Ltd

June 2021

border archaeology

archaeology & built heritage
working throughout the UK

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Cover: Elevated view looking southeast towards Thunderer Jetty with Crossness Pumping Station distantly visible on south bank of the River Thames

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Contents:

1 Executive Summary

Border Archaeology (BA) has been commissioned to carry out a Heritage Statement (HS) with regard to a planning application for jetty refurbishment works at the Stolthaven Dagenham Terminal, Thunderer Jetty, Hindmans Road, Dagenham RM9 6PU. The results of this HS, which examines the impact of the proposed development on built heritage assets and their respective settings in the vicinity of the site, may be briefly summarised thus:

Thunderer Jetty: The overall impact can be assessed as **Slight**, based on a cross-referencing of the significance of the structure, assessed as being of **Low** (ie. local) importance in historical terms as a purpose-built jetty erected by Samuel Williams & Sons in 1910-11 for the fitting out of the dreadnought HMS Thunderer, the last warship to be launched in the Thames, against the magnitude of impact, assessed as **Minor**. While there will clearly be a noticeable change to elements of the jetty; those elements to be removed (including the dolphins and landing stage) are later additions of c.1950-62. The jetty head and approach, which appear to represent original (though much altered) elements of the jetty structure will not be demolished while the works will largely occupy the footprint of the existing structure and will not result in a significant increase in terms of scale and massing. Moreover, the proposal works will extend the working life of the jetty, preserving its essential industrial character.

No. 4 Jetty Dagenham Dock (Grade II): The overall impact can be assessed as **Slight**, reflecting the **High** importance of the Grade II listed building, constructed as a deep-water coaling jetty by Samuel Williams & Sons in 1899-1903 and one of the earliest surviving reinforced concrete structures of its type in the country, considered against the magnitude of impact, assessed as **Negligible/Minor**. While the refurbishment works will result in a slight discernible change to the setting of the nearby No. 4 Jetty (located about 119m east of the site), the scale and footprint of the existing structure at Thunderer Jetty will remain largely intact and thus it is not considered that these works will introduce an overly disproportionate or intrusive element into the setting of the nearby Grade II listed building. Indeed, the retention of the Thunderer Jetty as a working structure is considered to be a positive factor, respecting the historic industrial character of the nearby No. 4 Jetty and the surrounding locality.

Crossness Pumping Station (Grade I): The overall impact may be assessed as **Slight**, based on a cross-referencing of the significance of the heritage asset, assessed as being of **Very High** importance as the best-preserved example of a pumping station constructed in the early to mid-1860s by the pioneering civil engineer Joseph Bazalgette as part of his grand sewerage scheme to improve sanitation in the City of London, considered against the magnitude of impact, assessed as **Negligible**. It is considered that the proposed jetty refurbishment will result in a very slight change to existing distant views looking north across the Thames from the grounds of the pumping station and to oblique views looking southeast along Thunderer Road across the Thames towards the Grade I listed building.

Workshop ranges to Southeast and Southwest of main engine house, Crossness Pumping Station (Grade II): The overall significance of impact has been assessed as **Slight**, based on a cross-referencing of the significance of the heritage assets, assessed as being of **High** importance as well-preserved workshop ranges contemporary with the construction of the Crossness Pumping Station built by Bazalgette in the early to mid-1860s, considered against the magnitude of impact, assessed as **Negligible**. It is considered that the jetty refurbishment works may result in a very slight change to distant views experienced from these heritage assets looking northwards across the river towards Dagenham Dock.

Conclusion: In overall terms, the impact of the proposed refurbishment works at Thunderer Jetty on heritage assets in the vicinity of the site may be assessed as Slight. This assessment reflects the fact that those elements of the jetty structure to be removed are later additions. The scale and footprint of the jetty will remain largely intact and thus impact on nearby heritage assets, in particular the nearby No. 4 Jetty at Dagenham Dock, will clearly be limited in scope. It may also be argued that the proposed refurbishment works will extend the working life of this jetty, thus helping to preserve the long-established historic industrial character of this area, dating back to the late 19th/early 20th century. In terms of the National Planning Policy Framework, the overall impact of the development in heritage terms, based on the results of this Heritage Statement, may be said to constitute 'less than substantial harm' and may be considered to fall within the low range of this category of impact.

2 Introduction

Border Archaeology (BA) has been instructed by Robert West on behalf of Stolthaven Dagenham Ltd to undertake a Heritage Statement (HS) with regard to a planning application for the jetty refurbishment works at the Stolthaven Dagenham Terminal, Thunderer Jetty, Hindmans Road, Dagenham RM9 6PU. In brief, the proposed works comprise the demolition, removal and refurbishment of the existing berth structures and to construct a replacement jetty approach (with overhead pipe rack), breasting dolphins, mooring dolphins and a new jetty head/ loading platform (LBBD Planning Ref. 21/00455/FULL).

It should be noted that this HS deals specifically with the impact of the proposed development on built heritage assets; a separate desk-based assessment report has been produced with regards to impact on archaeological assets (MoLA 2021).

3 Site Location

The site at Thunderer Jetty, Dagenham comprises a T-shaped reinforced concrete jetty, consisting of a head/platform with associated dolphins (mooring structures) and an approach structure, which is currently used as a transhipment point associated with the oil storage terminal operated by Stolthaven Dagenham Ltd.

The jetty, which was originally built in 1910-11 with additions made in the mid-late 20th century, projects southward into the River Thames and is bounded to the immediate N by the storage and office facilities of the Stolthaven terminal. Flanking the site to the E and W are bulk aggregate storage facilities (Cemex and Hanson). The grid reference for the site (which covers an approximate area of 1.2ha) is NGR: TQ 48668 81787.

The property is not located within a Conservation Area but is situated within the Archaeological Priority Area (APA) of Barking Level and Dagenham Marsh as designated by the London Borough of Barking and Dagenham. Located about 119m E of the site is Jetty Number 4 and Approach, formerly at Samuel Williams and Company, Dagenham Dock, designated as a Grade II listed building (List Entry No. 1391706).

3.1 Soils & Geology

The British Geological Survey (BGS) records the solid geology in the vicinity of the site as consisting of bedrock of the Thanet Sand Formation, overlain by superficial Tidal River or Creek deposits of clay and silt (BGS 2021).

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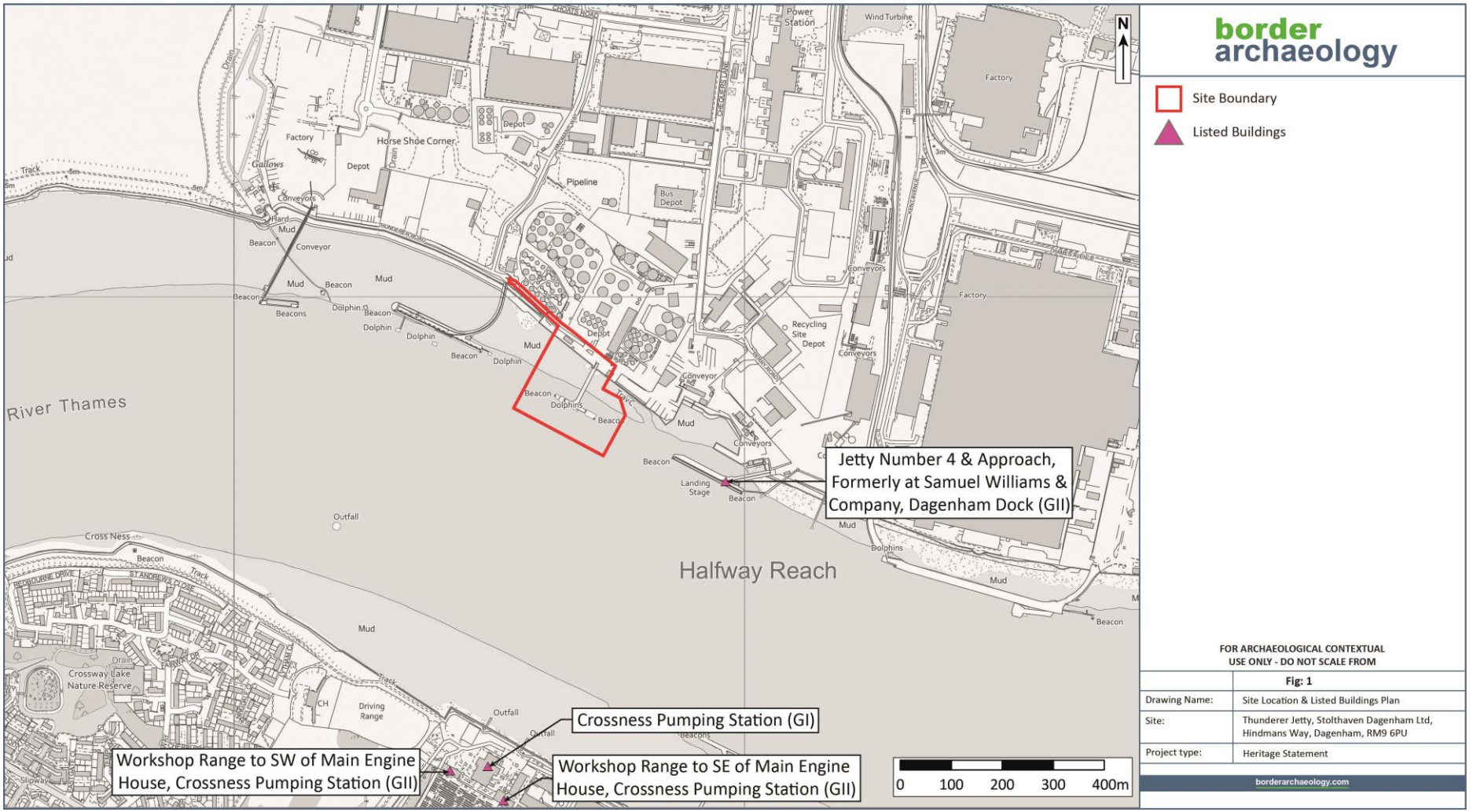

4 Methodology

This Heritage Statement identifies and describes those designated and undesignated heritage assets which may be affected by the proposed development and assesses their significance, followed by a description of the application proposals and an assessment of their potential impact on these heritage assets, in order to reach an overall assessment of the significance of impact upon the built heritage resource in the vicinity of the proposed development.

4.1 Legislative Framework

BA are cognisant of the following national and local planning policy guidance and legislative information relating to the status of designated and non-designated heritage assets and the preparation of Heritage Statements. Listed Buildings are referred to as 'designated heritage assets' at national planning policy level and under the current National Planning Policy Framework (NPPF) published in 2019, the following policies are of specific relevance to the assessment of these assets.

NPPF Chapter 16 para. 189 states that: '*In determining applications, local planning authorities should require an applicant to describe the significance of any heritage assets affected, including any contribution made by their setting. The level of detail should be proportionate to the assets' importance and no more than is sufficient to understand the potential impact of the proposal on their significance. As a minimum the relevant historic environment record should have been consulted and the heritage assets assessed using appropriate expertise where necessary'.*

Chapter 16 para. 193-196 state that: '*When considering the impact of a proposed development on the significance of a designated heritage asset, great weight should be given to the asset's conservation (and the more important the asset, the greater the weight should be). This is irrespective of whether any potential harm amounts to substantial harm, total loss or less than substantial harm to its significance.*

Any harm to, or loss of, the significance of a designated heritage asset (from its alteration or destruction, or from development within its setting), should require clear and convincing justification. Substantial harm to or loss of: a) Grade II listed buildings, or grade II registered parks or gardens, should be exceptional; b) assets of the highest significance, notably scheduled monuments, protected wreck sites, registered battlefields, grade I and II listed buildings, grade I and II* registered parks and gardens, and World Heritage Sites, should be wholly exceptional.*

Where a proposed development will lead to substantial harm to (or total loss of significance of) a designated heritage asset, local planning authorities should refuse consent, unless it can be demonstrated that the substantial harm or total loss is necessary to achieve substantial public benefits that outweigh that harm or loss, or all of the following apply: a) the nature of the heritage asset prevents all reasonable uses of the site; and b) no viable use of the heritage asset itself can be found in the medium term through appropriate marketing that will enable its conservation; and c) conservation by grant-funding or some form of not for profit, charitable or public ownership is demonstrably not possible; and d) the harm or loss is outweighed by the benefit of bringing the site back into use. Where a development proposal will lead to less than substantial harm to the significance of a designated heritage

asset, this harm should be weighed against the public benefits of the proposal including, where appropriate, securing its optimum viable use.'

With regard to non-designated heritage assets, the following sections in the NPPF are of relevance. Chapter 16 para. 197 states that '*the effect of an application on the significance of a non-designated heritage asset should be taken into account in determining the application. In weighing applications that directly or indirectly affect non-designated heritage assets, a balanced judgement will be required having regard to the scale of any harm or loss and the significance of the heritage asset*'.

Chapter 16 para. 198 states that '*local planning authorities should not permit the loss of the whole or part of a heritage asset without taking all reasonable steps to ensure the new development will proceed after the loss has occurred*'.

4.2 Criteria

This Heritage Statement has been informed by relevant Historic England guidance for assessing impact on heritage assets, their significance and respective settings, namely, *Conservation Principles Policies and Guidance for the Sustainable Management of the Historic Environment* (Historic England 2015), *The Setting of Heritage Assets: Historic Environment Good Practice Advice in Planning 3 - Second Edition* (Historic England 2017a), *Understanding Place: Historic Area Assessments: Principles and Practice* (Historic England 2017b) and *Statements of Heritage Significance: Analysing Significance in Heritage Assets Historic England Advice Note 12* (Historic England 2019).

The HS has also been informed by criteria for assessing visual and physical impact on cultural heritage assets contained in *Design Manual for Roads and Bridges (DMRB) Sustainability and Environment Appraisal LA 106: Cultural Heritage Assessment* (revised January 2020).

It also acknowledges relevant regional and local planning policy guidance regarding assessment of heritage assets contained in the *London Plan* (2016) in particular Policy 7.8 (Heritage Assets and Archaeology) which states that:

'*A/ London's heritage assets and historic environment, including listed buildings, registered historic parks and gardens and other natural and historic landscapes, conservation areas, World Heritage Sites, registered battlefields, scheduled monuments, archaeological remains and memorials should be identified, so that the desirability of sustaining and enhancing their significance and of utilising their positive role in place shaping can be taken into account.*
B/ Development should incorporate measures that identify, record, interpret, protect and, where appropriate, present the site's archaeology.
C/ Development should identify, value, conserve, restore, re-use and incorporate heritage assets, where appropriate.
D/ Development affecting heritage assets and their settings should conserve their significance, by being sympathetic to their form, scale, materials and architectural detail.'

Also of relevance is Policy HC1 (Heritage Conservation and Growth) contained in the *Draft New London Plan* which was published in December 2019 although it has not yet been formally adopted. Of particular importance is Section

C which states that '*development proposals affecting heritage assets, and their settings, should conserve their significance, by being sympathetic to the assets' significance and appreciation within their surroundings. The cumulative impacts of incremental change from development on heritage assets and their settings, should also be actively managed. Development proposals should avoid harm and identify enhancement opportunities by integrating heritage considerations early on in the design process*'.

In terms of local planning policy, of particular relevance is Strategic Objective SO10 contained in the *Barking and Dagenham Local Plan 2010–2025* (adopted 2010) with regard to '*protecting and enhancing our natural and man-made assets including our biodiversity, habitats, landscape character and historic heritage as identified in the UK, London and Barking and Dagenham Biodiversity Action Plans, the Council's Landscape Framework and Conservation Area Appraisals.*'

In more detail, the assessment process can be described as comprising the following elements:

1/ Identification of the Heritage Assets and their Associated Settings

Baseline information regarding heritage assets in the vicinity of the proposed development was obtained from the Greater London Historic Environment Record, the National Heritage List for England and the Historic England Archive.

2/ Assessment of the Significance of the Heritage Assets and the extent to which their Settings respectively contribute to their Significance

The significance of the heritage assets was assessed with reference to criteria in Section 2.6 of *Understanding Place: Historic Area Assessments: Principles and Practice* (HE 2017b) which are briefly outlined below:

Rarity: Does it exemplify a pattern or type seldom or never encountered elsewhere? It is often assumed that rarity is synonymous with historical importance and therefore high value, but it is important not to exaggerate rarity by magnifying differences and downplaying common characteristics.

Representativeness: Is its character or type representative of important historical or architectural trends? Representativeness may be contrasted with rarity.

Aesthetic appeal: Does it (or could it) evoke positive feelings of worth by virtue of the quality (whether designed or artless) of its architecture, design or layout, the harmony or diversity of its forms and materials or through its attractive physical condition?

Integrity: Does it retain a sense of completeness and coherence? In a historic landscape with a high degree of integrity the functional and hierarchical relationships between different elements of the landscape remain intelligible and nuanced, greatly enhancing its evidential value and often its aesthetic appeal. Integrity is most often used as a measure of single-phase survival, but some buildings and landscapes are valuable precisely because of their multiple layers, which can have considerable evidential value.

Associations: Is it associated with important historic events or people? Can those associations be verified? If they cannot, they may still be of some significance, as many places and buildings are valued for associations that are traditional rather than historically proven.

Consideration was given as to whether the setting of the heritage assets contributes or detracts from its significance, with reference to the following attributes, namely:

1/ Topography
2/ Presence of other heritage assets
3/ Formal design
4/ Historic materials and surfaces
5/ Land use
6/ Trees and vegetation
7/ Openness, enclosure and boundaries
8/ History and degree of change over time
9/ Integrity
10/Surrounding townscape character
11/Views from, towards and across the asset (to including the asset itself)
12/Visual prominence & role as focal point
13/Intentional inter-visibility with other historic and natural features
14/Sense of enclosure, seclusion, intimacy or privacy
15/Accessibility, permeability and patterns of movement
16/The rarity of comparable survivals of setting
17/Associative relationships between heritage assets
18/ Cultural associations

3/ Assessment of the Magnitude of Impact on Built Heritage Assets and their Settings

The magnitude of physical and visual impact resulting from the proposed development on the setting of the built heritage assets was then assessed, supported by a photographic survey of the area from key vantage points.

Consideration was given to key attributes of the proposed development in terms of:

Location and siting, e.g. proximity to asset, extent, degree to which location will physically or visually isolate the asset & position in relation to key views
2/ Form and appearance, e.g. prominence/conspicuousness, competition with or distraction from the asset, scale and massing, proportions, materials. architectural style or design
3/ Additional effects e.g. change to built surroundings and spaces, change to general character and tree-cover.
4/ Permanence

The assessment of magnitude of impact was based on the following criteria:

High: The development will result in substantial changes to key historic building elements, such that the resource is totally altered. The development will result in comprehensive changes to the setting of the heritage asset.

Moderate: The development will result in changes to many key building elements, such that the resource is significantly modified. The development will result in changes to the setting of an historic building, such that it is significantly modified.

Minor: The development will result in changes to key historic building elements, such that the asset is slightly different. It will result in changes to the setting of an historic building, such that it is noticeably changed.

Negligible: The development will result in very slight changes to key historic building elements that hardly affect it. The development will result in very slight changes to the setting of an historic building.

No change: There is no discernible impact upon historic fabric or to the setting of the Heritage Asset as a result of the development.

4/ Overall Assessment of the Significance of Impact on the Heritage Assets

A conclusion is then drawn integrating both the assessment of the significance of the heritage assets and their associated settings and the magnitude of impact of the proposed development to produce an overall assessment of the implications of the development proposals. 'Setting' is defined in this Heritage Statement as "the surroundings in which [the asset] is experienced". It is acknowledged that these surroundings may evolve and that elements of a setting may 1) make a positive or negative contribution to the significance of an asset, 2) affect the ability to appreciate that significance or 3) be neutral (Historic England 2019).

Table 1: Overall Significance of impact on heritage assets

Magnitude of impact.	***Importance of heritage asset.***				
	Very High	**High**	**Medium**	**Low**	**Negligible**
No change	Neutral	Neutral	Neutral	Neutral	Neutral
Negligible	Slight	Slight	Neutral/Slight	Neutral/Slight	Neutral
Minor	Moderate/Large	Slight/Moderate	Slight	Neutral/Slight	Neutral/Slight
Moderate	Large/Very Large	Moderate/Large	Moderate	Slight	Neutral/Slight
Major	Very Large	Large/Very Large	Moderate/Large	Slight/Moderate	Slight

4.3 Consultation of Records relating to Archaeological & Built Heritage Assets

In order to fully appreciate the significance of the heritage assets and their respective settings which may be affected by the proposed development, information was collected on the known archaeological and built heritage assets within a 1km radius centred on the site of proposed development.

The research carried out for this Heritage Statement consisted of the following elements:

- Consultation of records relating to designated and undesignated built heritage assets in the vicinity of the site which might be affected by the proposed development, including the Greater London Historic Environment Record and the National Heritage List for England.
- Online collections of documentary records, census returns, post office directories and historic maps and photographs were consulted using records held by the National Archives and the British Library

Please note that due to travel restrictions as a result of the Covid-19 pandemic, it has not been possible to undertake a detailed site visit as per usual practices. Photographs of the site have been kindly supplied by the client and BA has endeavoured to use its experience in accessing alternative sources and methodologies to obtain other relevant information and will look to carry out subsequent site visits at a later date if appropriate and so required.

5 Heritage Assessment

5.1 Site Assessment & Summary Historical Background

5.1.1 Site Description

The following description of the development site is indebted to the Planning Statement and Design and Access Statement produced for this planning application (Robert West 2021). The site at Thunderer Jetty comprises a reinforced concrete T-shaped jetty projecting out about 83m into the River Thames, consisting of a jetty approach carried on a latticed superstructure (with a raised steel pipe rack overhead) leading to a jetty head/loading platform. Four more structures constructed between c.1950-60 surround the jetty head, comprising the upstream dolphin (mooring structure), middle dolphin, downstream dolphin and access pontoon (*Plate 1 & 2*).

Plate 1: View looking S from landward side showing approach structure leading to Thunderer Jetty with the Crossness Pumping Station visible on the S side of the Thames

The jetty is in active commercial use as a transhipment point associated with the bulk liquid storage terminal operated by Stolthaven Dagenham Ltd (used for the storage of petroleum and petrochemicals), the facilities of which are located immediately S of the jetty and comprise approximately 120 storage tanks up to 25m in diameter and 16m height within several bunded tank pits, warehouses, a laboratory, boiler house, compressor, an office, gatehouse, and HGV terminals for loading/ unloading (*Plate 2*). The setting of the jetty may be characterised as predominantly industrial, overlooked by the liquid storage terminal facilities and flanked by bulk aggregate storage facilities (Cemex and Hansons). On the opposite side of the Thames, the Crossness Pumping Station and its associated Workshops, together with Erith Marshes, form the backdrop to views of the jetty. Thunderer Jetty forms one of a series of substantial jetties along the N side of the river at Dagenham, the earliest being the No. 4

Jetty at Dagenham Dock further along to the E, which was also constructed for Samuel Williams and Sons in 1899-1903 and is designated as a Grade II listed building. Both Thunderer Jetty and the No. 4 Dock feature together in views looking N from the section of the Thames Path which runs along the S bank of the River Thames adjacent to the Crossness Pumping Station (*Plate 4*).

Plate 2: Oblique view looking SSW showing approach structure leading to head/platform at Thunderer Jetty

5.1.2 Historical Background and Assessment of Significance

Thunderer Jetty was originally built in 1910-11 by Samuel Williams and Sons Ltd (to designs by the engineer Arthur Williams) specifically for the fitting out of the warship H.M.S. Thunderer, the last 'Orion'-class dreadnought to be built and the last warship to be launched in the Thames, which had been built at Canning Town, in West Ham, by the Thames Ironworks (Powell 1966, 284; Cherry, O'Brien & Pevsner 2005, 155). HMS Thunderer entered active service in 1912 and saw action at the Battle of Jutland in 1916, before being scrapped in 1926.

A report in the Chelmsford Chronicle dated 10th February 1911 describes the construction of the jetty, stating that 'a special jetty, built of ferro-concrete, has been constructed at Dagenham in connection with the work to be done on H.M.S. Thunderer. The jetty stretches from the shore into the river for 352 ft., with a breadth of 22ft., and terminates at the river end in a" T" head 146 ft. long, alongside which the Thunderer will be moored. At the shore end of this jetty elaborate works have been laid out'.

The jetty structure is shown on the Ordnance Survey 3rd edition 25-inch map of 1916 (*fig. 2*) and then comprised the T-shaped head/platform with a travelling crane and the approach structure. A later Ordnance Survey map of 1940 (*fig. 3*) shows that the head/platform structure had been enlarged and a track laid running from the head/platform connecting it to a wider network of railway lines connecting various parts of the dock area which had been significantly expanded. At some point between c.1950 and 1962, it appears that the jetty was significantly enlarged with the addition of the upstream, downstream and middle dolphins and a landing stage, all of which are shown on an OS 1:1250 map of 1962 (not reproduced due to copyright).

While the Thunderer Jetty is not a designated or non-designated heritage asset and is not listed on the National Heritage List or the Greater London Historic Environment Record, it may be regarded as being a structure of some local interest in historical terms due to its association with the Williams family, owners of Dagenham Dock who built this jetty and the nearby Grade II listed jetty further to the E, as well as the fact that it was purpose built for the fitting of the dreadnought HMS Thunderer, the last warship to be launched in the Thames. It may thus be considered to be a structure of **Low** (ie. local) importance in heritage terms.

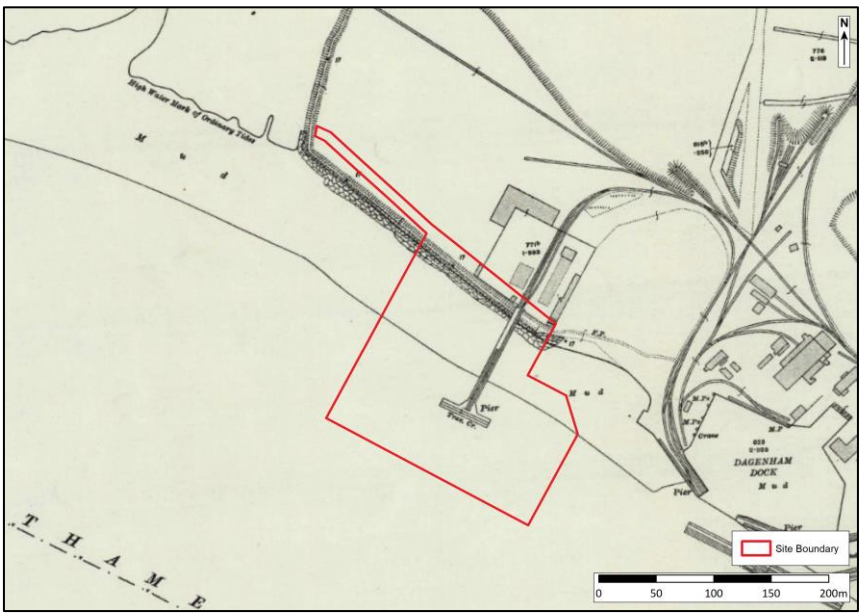

Fig. 2: Extract from the OS 3rd edition 25-inch map of 1916
(Reproduced by courtesy of the National Archives)

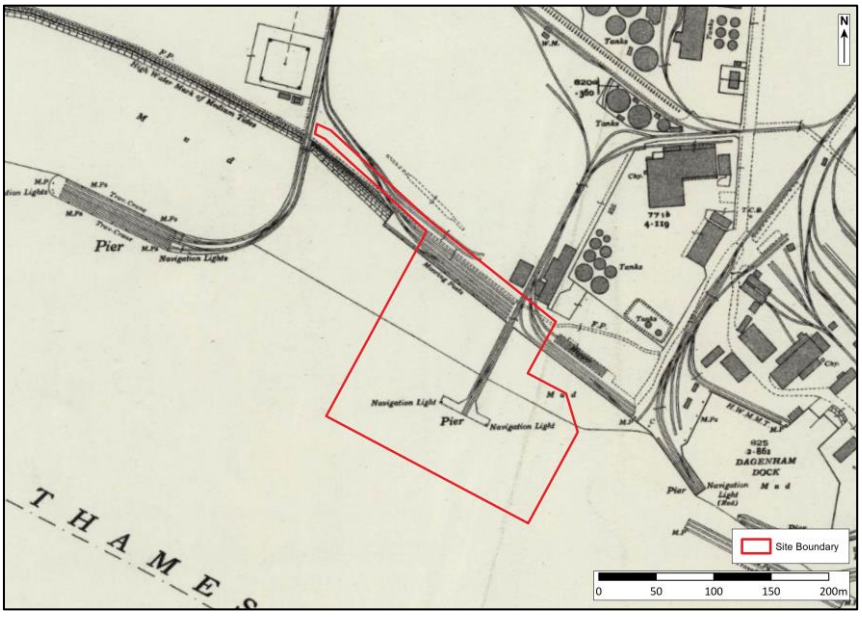

Fig. 3: Extract from the OS 4th edition 25-inch map of 1940
(Reproduced by courtesy of the National Archives)

Plate 3: View looking N from river showing front elevation of Thunderer Jetty with oil storage facilities on landward side

Plate 4: Distant view from Thames Path in front of Crossness Pumping Station showing Thunderer Jetty (to left of centre) and No. 4 Jetty Dagenham Dock (to right of picture)

5.2 Identification of Built Heritage Assets, Settings & Significance

This section of the Heritage Statement comprises an identification and description of the listed and locally listed buildings in the vicinity of the proposed development and an assessment of their significance in heritage terms. The assessment of significance is primarily based on the criteria for the assessment of heritage assets contained in *Conservation Principles Policies and Guidance for the Sustainable Management of the Historic Environment* (Historic England 2015b), which considers their significance in terms of their evidential, historical, aesthetic and communal values.

Evidential value derives from the potential of a place to yield evidence about past human activity, which tends to be to be diminished in proportion to the extent of its removal or replacement.

Historical value derives from the ways in which past people, events and aspects of life can be connected through a place to the present and tends to be either illustrative or associative.

Aesthetic value may be said to be derived from the ways in which people draw sensory and intellectual stimulation from a place, which can be the result of formal design or gradual, organic changes over time.

Communal value is derived from the meanings of a place for the people who relate to it, or for whom it figures in their collective experience or memory. Communal values are closely bound up with historical (particularly associative) and aesthetic values but tend to have additional and specific aspects.

Four designated built heritage assets were identified within a 1km radius of the proposal site, namely;
1/ Jetty Number 4 and Approach, formerly at Samuel Williams and Company, Dagenham Dock (Grade II)
2/ Crossness Pumping Station (Grade I)
3/ Workshop Range to SW of Main Engine House Crossness Pumping Station, Belvedere Road (Grade II)
4/ Workshop Range to SE of Main Engine House Crossness Pumping Station, Belvedere Road (Grade II)

The following section describes the heritage assets and considers their significance, based on the criteria above.

5.3 Jetty Number 4 and Approach, formerly at Samuel Williams and Company, Dagenham Dock (Grade II)

5.3.1 Description of Heritage Asset and its Setting

Located on the N side of the Thames, about 119m E of the site at Thunderer Jetty, is Jetty No. 4 at Dagenham Dock, an irregular T-shaped jetty projecting out over the river, 13 bays (150m) in length and constructed of reinforced concrete, with an associated approach structure and evidence of disused tracks for cranes and railway wagons (*Plate 5*). The structure was constructed in 1899-1903 as a deep-water jetty for Samuel Williams & Sons, barge-builders and owners of Dagenham Dock (established in 1887) to designs by a French engineer named M. Gerard of L.G. Mouchel & Partners (Rolt 1955, 57). At the time of its construction, it was the first concrete structure of its kind on the Thames, capable of carrying railway tracks and heavy lifting apparatus and attracted a considerable amount of coal traffic from the north of England. The jetty represents one of the oldest surviving concrete

structures of its type in Britain (Rolt 1955; Cherry, O'Brien & Pevsner 2005, 155). It was extended in 1906-7 and further additions were made in the mid-20th century, although much of the original structure survives intact.

In terms of its setting, the jetty stands within a heavily industrialised area on the N bank of the river, with extensive ranges of storage tanks, warehousing and cranes on the landward side associated with its current usage as an oil storage and distribution depot. It has a strong visual connection with the nearby dock structure at Thunderer Jetty, with which it is closely associated in historical terms, both having been constructed by the Williams family (*Plate 6*). There has been some recent redevelopment of this specific area, with the demolition of some of the older warehousing and tanks. Due to its exposed setting, projecting out into the river, the jetty features noticeably in distant views looking northwards from Thames Path on the opposite side of the river, particularly from Erith Marshes and Crossness Pumping Station (*Plate 4*).

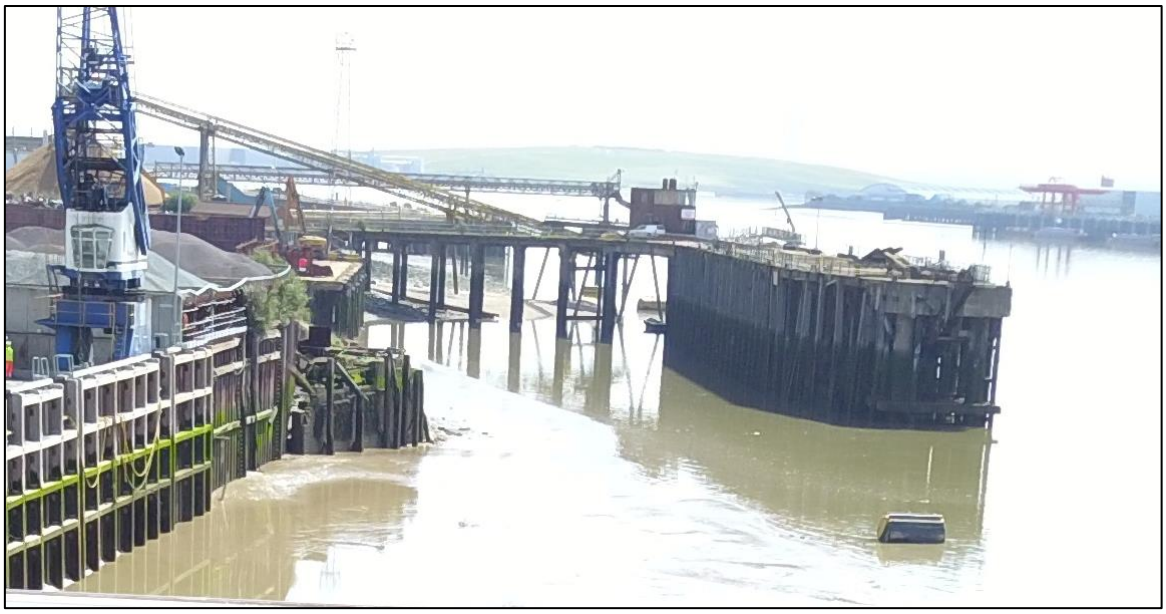

Plate 5: Close up view looking E showing Jetty No. 4 at Dagenham Dock and the approach structure

Jetty No. 4 Dagenham Dock was designated as a Grade II listed building on 9th June 2006 (List Entry No. 1391706), the detailed listing description extracted from the National Heritage List for England reads as follows:

'*II Coaling jetty. 1899-1903, for Samuel Williams & Sons Ltd. Built to designs by L. G. Mouchel & Partners, British agents for Hennebique's patent reinforced-concrete constructional system. Extended one bay in 1906-7, to designs by Arthur E. Williams, engineer and son of Samuel Williams, incorporating his patent system for the horizontal casting of reinforced-concrete piles, developed in response to problems encountered with vertically cast Hennebique piles during the construction of this jetty. Jetty about 500ft (150m) long, parallel to north bank of Thames in front of Dagenham Dock. Approach from shore about half as long, angled at about 45 degrees to jetty, running from an easterly point on shore to meet jetty near its east end. Layout can be likened to an asymmetrical T shaped like a handgun. 13-bay jetty has 10 bays west of approach, one bay to east, two bays at junction, each bay being about 40ft (12m) square. Bays west of approach widened to north in mid-20th century, tapering towards west end. Original reinforced-concrete structure largely intact, though obscured by mid-20th-century additions.*

Trabeated or post-and-lintel construction, with robust cylindrical piers on pile foundations and with cushion capitals supporting platforms or floors framed by grids of girders. High-level and low-level horizontal cross braces link opposed pairs of piers, some broken. Early braces and girders have chamfered arrises. Original construction clearly visible on approach, 10 bays, similarly built, somewhat slighter piers with cushion capitals, platform ramps up slightly from shore to jetty. Piers and one bay of platform at jetty end of approach more robust, having cross braces as on jetty. Girder ends on approach project slightly over pier capitals. Railings renewed, but an original parapet panel with a coped cornice head stands on east side of approach on shore side. Both jetty and approach have disused tracks for cranes and railway wagons. Source: L. T. C. Rolt, 'Samuel Williams & Sons Ltd; 1855-1955', in 'A Company's Story in its Setting: Samuel Williams & Sons Ltd, 1855-1955' (London, 1955). Jetty No. 4 is important as being among Britain's earliest surviving reinforced-concrete structures, with additional interest arising from the invention and early deployment here of Williams's patented piles, an important advance for civil engineering. The reinforcing steelwork and other additions of the mid-20th century and later are not of special interest.'

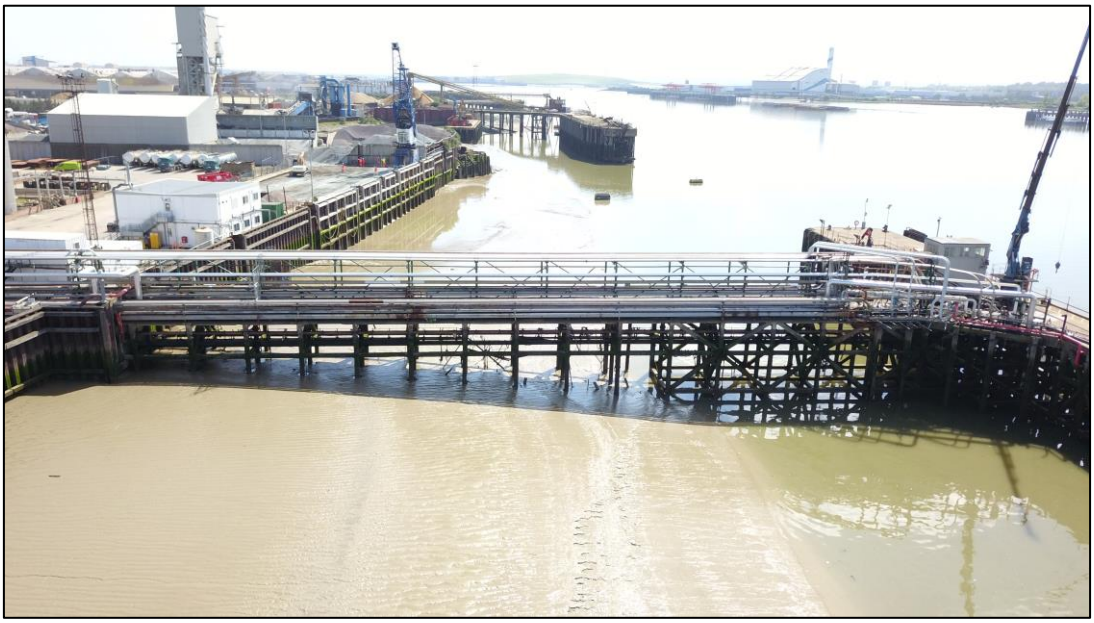

Plate 6: Elevated view looking E along the foreshore showing Thunderer Jetty in foreground with No. 4 Jetty in background

5.3.2 Assessment of Significance

No. 4 Jetty at Dagenham Dock may be regarded as a built heritage asset of **High** significance, reflecting its status as a Grade II listed building and its importance in architectural terms as one of the oldest surviving reinforced concrete structures of its type in the country. The extension to the jetty added in 1906-7 is also of note as having been constructed using an innovative system for the horizontal casting of reinforced-concrete piles designed by Arthur Williams, son of Samuel Williams, which was considered to be a major improvement on the vertically cast Hennebique piles used in the original construction of the jetty. The significance of the jetty is enhanced by the fact that much of the original structure survives intact in spite of later additions. In broad terms, the jetty also attests to the rapid transformation of Dagenham into a hub of maritime trade and heavy industry during the late 19th/early 20th century. In spite of the fact that some of the heavy industry which characterised this area has vanished, its immediate setting remains largely industrial in character.

5.4 Crossness Pumping Station (Grade I)

5.4.1 Description of Heritage Asset and its Setting

The Crossness Pumping Station is located on the S bank of the River Thames at Belvedere, approximately 650m S of the site at Thunderer Jetty on the opposite side of the river. This substantial complex of sewage pumping buildings (decommissioned in the 1950s and recently restored and converted into a museum) was constructed in 1862-65 to designs by the pioneering civil engineer Joseph Bazalgette (chief engineer of the Metropolitan Board of Works) and the architect Charles Henry Driver as part of the works of the Southern Outfall Sewer. This formed part of an extensive sewerage system for the City of London created by Bazalgette in response to the severe cholera epidemics of the 1850s and the 'Great Stink' of 1858 and which played a vital role in improving the quality of drinking water and sanitation in the capital.

The sewage pumping station was built in 1862-65 and comprises a two-storey engine house (Grade I listed) with separate boiler house and valve house and two detached single-storey workshops to the SW and SE (both Grade II listed). The engine house which contains four beam engines (designed by James Watt & Sons) which pumped out the sewage on the falling tide, is externally clad in white Gault brickwork with polychromatic embellishments designed in a round-arched Romanesque style. The elaborate internal cast-iron structure of the engine house, with painted cast iron galleries and an ornamented central octagon, is a remarkable survival on a grand scale and has been justly described by Pevsner as 'a cathedral of ironwork' (Cherry & Pevsner 2002, 133). It is the only one of Bazalgette's London pumping stations to retain its original beam engines. The buildings of the Crossness Pumping Station feature prominently in riverside views, both from the Thames Path (which runs along the S bank of the river directly in front of the complex) and more distantly from the northern side of the River in Dagenham.

Plate 7: View looking ENE showing eastern elevation of engine house at Crossness Pumping Station

The Crossness Pumping Station was designated as a Grade I listed building on 24th June 1970 (List Entry No. 1064261), the listing description contained in the National Heritage List for England reads as follows: '*Belvedere Road 1. 5005 Belvedere Crossness Pumping Station TQ 48 SE 1/1 24.6.70. I 2. Opened 4 April 1865. Engineer: Joseph Bazalgette. Two storeys, yellow brick. Three-one-three bays divided by pilasters; the windows simple Romanesque style with 3 round headed lights. Machicolated cornice between the pilasters, cornice across all above this. Punctuated capped parapet. Three jointed one storey parallel gabled ranges at right angles to main block. The gable ends have black round arches containing a three-light window (each with round head). Circular window in tympanum side elevation with series of joined round headed windows. Interior: Important cast iron architectural treatment and 4 colossal beam engines by James Watt and Co. Reference: Architectural Review December 1969. Article by John Smith with photographs and engraving*.'

5.4.2 Assessment of Significance

The Crossness Pumping Station may be regarded as a building of **Very High** importance, reflecting its Grade I listed status as the best-preserved example of the major pumping stations constructed by the renowned Victorian civil engineer Joseph Bazalgette as part of the extensive programme of sewerage works implemented in London in response to the severe health crises and cholera epidemics of the 1850s, to improve the quality of drinking water and sanitation within the capital. The interior of the engine house with its elaborate painted ironwork (which has been recently restored) is an exceptionally grand and important example of Victorian civil engineering and also retains its original beam engines used to pump the sewage.

5.5 Workshop ranges to SE and SW of main engine house, Crossness Pumping Station (Grade II)

5.5.1 Description of Heritage Asset and its Setting

Located to the SE and SW of the main engine house at Crossness Pumping Station are two single-storey brick workshops constructed in 1862-65 to designs by the civil engineer Joseph Bazalgette and the architect Charles Henry Driver. The workshops are long rectangular gabled structures of 12 bays, constructed in a round-arched Romanesque style of yellow brick with red brick and Portland stone dressings. The workshop ranges form an important component of the well-preserved complex of buildings at the Crossness Pumping Station and although subsidiary to the main engine house, may be discerned in views from the Thames Path and more distantly from the N side of the river.

The two workshop ranges were designated as Grade II listed buildings on 1st June 1990, the listing descriptions for the two workshops to the SE and SW of the engine house (List Entry Nos. 1064216 & 1250557) read as follows:

'*Workshop range to SE (and SW) of main engine house (qv), Crossness Pumping Station II GV Workshop. Built 1862-5 by Contractor William Webster to designs of Sir Joseph Bazalgette and Charles Henry Driver. Flemish bond yellow brick with gauged red brick dressings and Portland Stone to kneelers and buttresses; gabled slate roof with glazed rooflights. Rectangular plan. Each 3-bay gable end has stone-coped gable with moulded kneelers: plank double doors set in semi-circular arched architrave with raised imposts and dog-tooth hood mould set within similar blind*

recessed arch flanked by recessed panels; doorway flanked by similar blind arches set in square-headed recessed bay with carved stone corbels to arcaded frieze and dentilled dog-tooth cornice. North wall of 12 bays has similar blind arches set in similar square-headed recessed bays, and 2 inserted C20 entries. South wall of 24 bays has offset buttresses dividing recessed bays each of which has similar frieze and cornices. Interior: 12-bay wrought-iron roof. One of a pair of workshops facing south elevation of the boiler house of Bazagette's engine house of 1862-5 (Contract drawings in GLRO: MBW 2511)'

Plate 8: View looking W showing E gable end of workshop range to SW of main engine house at Crossness Pumping Station

5.5.2 Assessment of Significance

The two workshop ranges to the SE and SW of the engine house at Crossness Pumping Station may be regarded as heritage assets of **High** importance, reflecting their status as Grade II listed buildings and forming an important component of the surviving complex of buildings at the Crossness Pumping Station. They may be regarded as well-preserved examples of their type, retaining their original architectural detailing largely intact (both internally and externally) and form an important element of the setting of the Grade I engine house.

6 Description of Proposals and Magnitude of Impact

6.1 Summary Description of Proposals

The following description of the development is based on architects' drawings, the *Planning Statement* and *Design and Access Statement* produced by Robert West on behalf of the client and supplied on 11th June 2021 (*figs. 4-6*). Subsequent publication of revised proposals and specifications for the proposed development, together with updated plans and elevation drawings, may necessitate revisions to this report and the conclusions reached.

As outlined in the *Planning Statement* (Robert West 2020), the proposed development entails the demolition, removal and refurbishment of the existing berth structures and the construction of a replacement jetty approach (with overhead pipe rack), breasting dolphins, mooring dolphins and a new jetty head/ loading platform to provide an extended life of 40 years (to about 2063) and to meet the latest safety and environmental standards. The existing jetty approach and head will not be demolished but will become redundant. No dredging work to alter the draft of the berths is required. The proposed works are positioned at the existing locations and footprints of the existing structures so far as reasonably practicable, the main constraint to which being the need to minimise operational downtime of the loading/ unloading facility.

6.2 Assessment of Magnitude of Impact

6.2.1 Thunderer Jetty

The proposed refurbishment works will result in a marked change to the appearance of the jetty, with the demolition and replacement of the existing berthing structures and the construction of a new approach, dolphins and landing platform. However, it should be noted that the existing dolphins and landing platform represent additions to the original structure, constructed c.1950-62. Moreover, it may be noted that the existing jetty approach structure and head/loading platform (which, though heavily modified, appear to represent the remaining original components of the jetty structure constructed in 1910-11) will not be demolished and the proposed works will largely occupy the footprints of the existing structures.

On this basis the impact of the proposed refurbishment scheme on the heritage significance of the jetty can be assessed as **Minor**, while there will be a noticeable change to elements of the jetty; those elements to be removed (chiefly the dolphins and landing stage) represent later additions of c.1950-62 and the works will largely occupy the footprint of the existing structure and will not result in a significant increase in terms of scale and massing. Moreover, the proposal works will extend the working life of the jetty structure, thus preserving its essential industrial character.

6.2.2 Jetty Number 4 and Approach, formerly at Samuel Williams and Company, Dagenham Dock (Grade II)

The proposed jetty refurbishment works will not directly impact upon the listed structure at Jetty No. 4; however it is considered that there is potential for a change to the setting of the Grade II jetty, both in terms of views experienced from Thunderer Road (on the N side of the river) and distant views looking N from the Thames Path

on the S side of the river, from the Crossness Pumping Station, in which the No. 4 Jetty and the Thunderer Jetty are both visible alongside each other. The latter views are considered to be particularly sensitive as these are likely to be experienced by people using the Thames Path or visiting the Pumping Station (now a museum), while views along Thunderer Road are restricted by the fact that much of this area lies within the bounds of the Stolthaven Terminal (and thus limited to public access).

However, while the demolition of the existing dolphins and establishment of a new approach structure will result in a change to the existing structure, particularly when viewed from the river, it may be noted that the original jetty head and approach will remain intact and the works will largely be situated within the footprint of the original structure. As far as can be ascertained from the architect's drawings supplied, there will thus not be a significant increase in terms of the scale and massing of the Thunderer Jetty structure which might potentially introduce an intrusive or disproportionate element into the setting of the nearby Grade II listed jetty. Moreover, it is considered that the proposed works will ensure the retention of Thunderer Jetty as a working dock, thus preserving the wider historic industrial character of this area including that of the adjacent No. 4 Jetty.

Based on the above assessment, the impact of the proposed refurbishment works on the setting of the listed No. 4 Jetty can be assessed as **Negligible/Minor**. While the proposed refurbishments to Thunderer Jetty will result in a slight discernible change to the setting of the nearby Grade II listed jetty, it should be emphasized that the scale and footprint of the existing jetty structure will remain largely intact and thus it is not considered that these works will overly intrude upon or detract from the setting of the designated heritage asset. Indeed, the continued use of the Thunderer Jetty as a working structure is considered to be a positive factor, preserving the historic dockland character of this area which forms an important element of the setting of the No. 4 Jetty.

6.2.3 Crossness Pumping Station (Grade I)

Due to its distance from the site, is clear that the immediate setting of the Grade I listed pumping station will not be affected by the proposed development. It is considered that the proposed jetty refurbishment will result in a very slight change to existing distant views looking N across the River Thames from the grounds of the pumping station and to oblique views looking SE along Thunderer Road across the Thames towards the listed building.

However, due to the fact that the proposed works will respect the scale and footprint of the existing jetty structure, it may be argued that the scheme would not introduce an overly discordant or inappropriate element to these riverside vistas, which are dominated by long-established industrial dockland activity (particularly with reference to those on the N side of the Thames). On this basis, the magnitude of impact from the proposed works on the setting of the Crossness Pumping Station can be assessed as **Negligible**.

6.2.4 Workshop ranges to SE and SW of main engine house, Crossness Pumping Station (Grade II)

The Grade II listed workshops are both set back from the riverside to the SW and SE of the main engine house at Crossness and thus the proposed development will not impact on the immediate setting of these heritage assets. It is considered that the jetty refurbishment works may result in a very slight change to distant views experienced from these heritage assets looking northwards across the river towards Dagenham Dock and the impact may thus be assessed as **Negligible**.

border archaeology

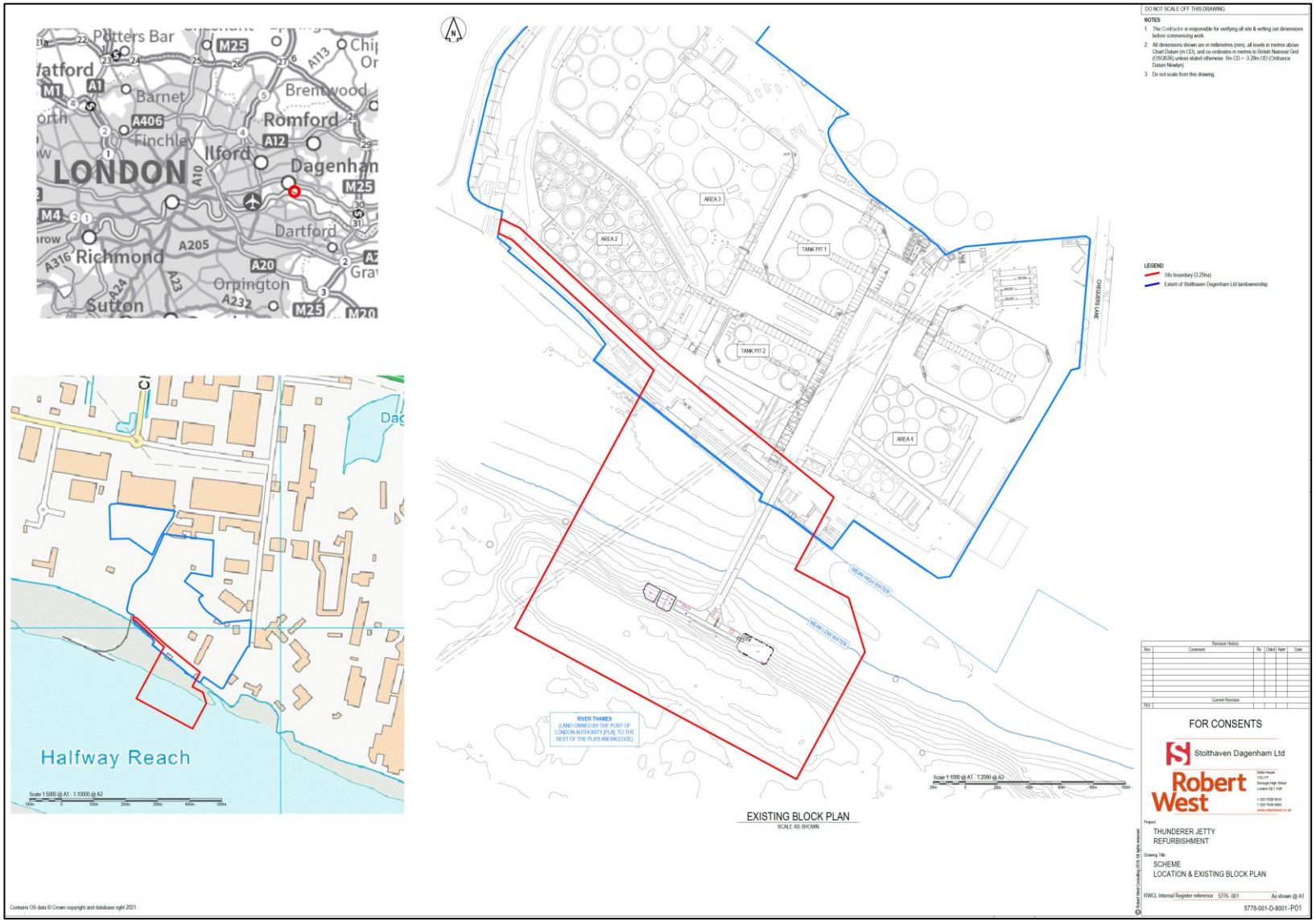

Fig.4: Existing Site Plan (Reproduced by courtesy of Robert West)

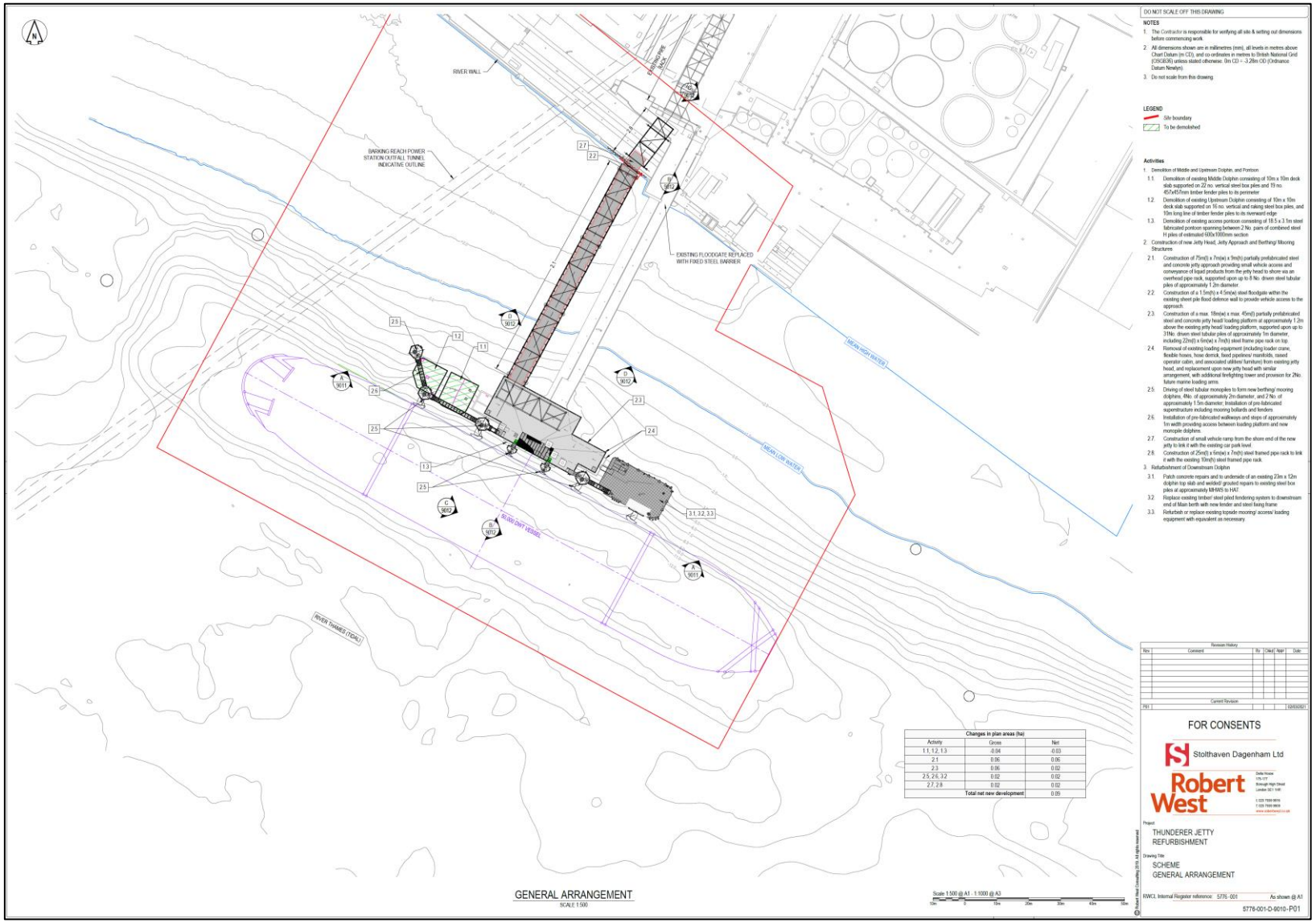

Fig. 5: Proposed Site Plan (Reproduced by courtesy of Robert West)

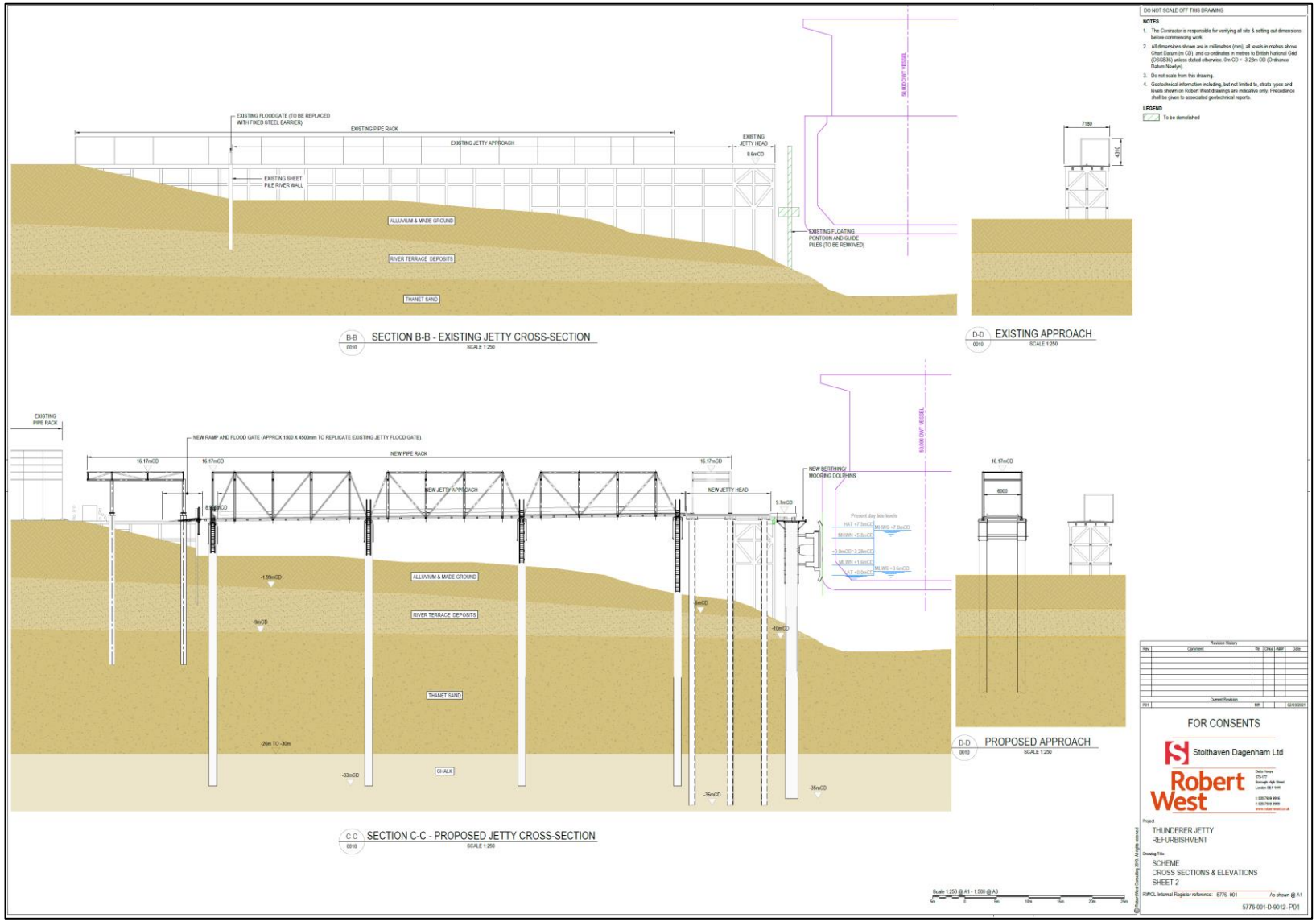

Fig. 6: Proposed cross sections and elevations (Reproduced by courtesy of Robert West)

7 Overall Significance of Impact & Conclusion

Having determined the intrinsic significance of the specific heritage assets considered for the purposes of this study and the potential magnitude of impact of the proposed development on these assets, it is now possible to reach an informed overall appraisal of the implications of the development proposals by means of cross-referencing the significance of the heritage assets against the magnitude of impact.

Thunderer Jetty: The overall significance of impact can be assessed as **Slight**, based on a cross-referencing of the significance of the structure, assessed as being of **Low** (ie. local) importance in historical terms as a purpose-built reinforced concrete jetty erected by Samuel Williams & Sons in 1910-11 for the fitting out of HMS Thunderer, the last warship to be launched in the Thames, against the magnitude of impact, assessed as **Minor**. While there will clearly be a noticeable change to elements of the jetty; those elements to be removed (including the dolphins and landing stage) are later additions of c.1950-62. The surviving original components of the jetty (the jetty head and approach) will not be demolished and the works will largely occupy the footprint of the existing structure and will not result in a significant increase in terms of scale and massing. Moreover, the proposal works will extend the working life of the jetty structure, thus preserving its essential industrial character.

No. 4 Jetty Dagenham Dock (Grade II): The overall impact can be assessed as **Slight**, based on a cross-referencing of the significance of the heritage asset, considered to be of **High** importance as a Grade II listed building constructed as a deep-water coaling jetty by Samuel Williams & Sons in 1899-1903 and one of the earliest surviving reinforced concrete structures of its type in the country, against the magnitude of impact, assessed as **Negligible/Minor**. While the proposed refurbishment works will result in a slight discernible change to the setting of the nearby No. 4 Jetty, it should be emphasized that the scale and footprint of the existing structure at Thunderer Jetty will remain largely intact and thus it is not considered that these works will introduce an overly disproportionate element into the setting of the nearby Grade II listed building. Indeed, the preservation of the Thunderer Jetty as a working structure is considered to be a positive factor, in keeping with the historic industrial character of this area.

Crossness Pumping Station (Grade I): The overall impact may be assessed as **Slight**, based on a cross-referencing of the significance of the heritage asset, assessed as being of **Very High** importance as the best-preserved example of a pumping station constructed in the early to mid-1860s by the pioneering civil engineer Joseph Bazalgette as part of his grand sewerage scheme to improve sanitation in the City of London, considered against the magnitude of impact, assessed as **Negligible**. It is considered that the proposed jetty refurbishment will result in a very slight change to existing distant views looking N across the River Thames from the grounds of the pumping station and to oblique views looking SE along Thunderer Road across the Thames towards the Grade I listed building.

Workshop ranges to SE and SW of main engine house, Crossness Pumping Station (Grade II): The overall significance of impact has been assessed as **Slight**, based on a cross-referencing of the significance of the heritage assets, assessed as being of **High** importance as well-preserved workshop ranges contemporary with the construction of the Crossness Pumping Station built by Bazalgette in the early to mid-1860s, considered against the magnitude of impact, assessed as **Negligible**. It is considered that the jetty refurbishment works may result in

a very slight change to distant views experienced from these heritage assets looking northwards across the river towards Dagenham Dock

Conclusion: In overall terms, the impact of the proposed refurbishment works at Thunderer Jetty on heritage assets in the vicinity of the site may be assessed as Slight. This assessment reflects the fact that those elements of the jetty to be removed are later additions. The scale, massing and footprint of the jetty will remain intact and thus the impact on nearby heritage assets, in particular the nearby No. 4 Jetty at Dagenham Dock, will clearly be limited in scope. It may also be argued that the proposed refurbishment works will extend the working life of this jetty, thus helping to preserve the long-established historic industrial character of this area, dating back to the late 19th/early 20th century.

In terms of the National Planning Policy Framework, the overall impact of the development in heritage terms, based on the results of this Heritage Statement, may be said to constitute 'less than substantial harm' and may be considered to fall within the low range of this category of impact.

8 Copyright

9 References

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10 Cartography

(All maps were obtained from the National Archives unless otherwise stated)

1864: OS 1st Edition 25-inch Map

1897: OS 2nd Edition 25-inch Map

1916: OS 3rd Edition 25-inch Map

1940: OS 4th Edition 25-inch Map

1962: OS 1:1250 Scale National Survey

1965: OS 1:2500 Scale National Survey

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